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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,898	06/29/2001	Yoshinobu Sasaki	50090-303	5030

7590

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EXAMINER

BETTENDORF, JUSTIN P

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,898

Applicant(s)

SASAKI, YOSHINOBU

Examiner

Justin P. Bettendorf

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 09 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (of record) for reasons of record repeated below.

Figure 3 of Ito et al. shows a high frequency circuit comprising semiconductor amplifiers 20, 32 {abstract - therefore inherently comprising transistor amplifiers because transistors are the elements used to form semiconductor amplifiers} connected by "distribution" divider 28 and "synthetic" combiner 28 with three-port circulator isolators 24, 26 (with resistor R at port c). The reference discloses, with respect to the impedance converting circuit, that the impedance at the output "b" of the isolators is matched to the transistor amplifiers 30, 32 (see figure 3 and col. 2, lines 65-68) with the input "a" of the isolator 24 being $2Z_0$ and the output "b" being Z_0 (thereby converting the impedance by a circuit - see col. 3, lines 50-60).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of AAPA figures 13 and 14 (for reasons of record).

4. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Carter et al (both of record).

As noted above, the Ito et al. reference discloses three-port circulators that are formed into isolators with the third port c connected with a terminal resistor R wherein an impedance conversion circuit is included (see col. 3, lines 50-60). However, the reference does not show the isolators formed at the branch portions of the distributors and combiners.

The Carter et al. reference teaches using a non-reciprocal circulator as the combiner/divider in a similar amplifier arrangement to the Ito et al. reference. As one of ordinary skill in the art recognizes, this arrangement of a combined circulator-isolator/combiner-divider of Carter et al. reduces the number of components.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have placed the circulator and to have an added additional port in order to form a non-reciprocal isolator/combiner-divider in the amplifier circuit of Ito et al. as taught by Carter et al. because such a modification would have advantageously reduced the number of elements thereby suggesting the modification.

Response to Arguments

5. Applicant's arguments filed 01/09/03 have been fully considered but they are not persuasive.

The applicant argues that Ito et al. does not teach an impedance conversion circuit coupled to an isolator.

This argument is not persuasive because, contrary to this assertion, the Ito et al. reference does teach "impedance conversion circuit" (i.e. converting one impedance to another in order to match the impedances). The reference states on col. 3, lines 50-58:

"The characteristic impedance of the present circulator can be adjusted either by controlling the width of the arm of the center conductor (FIG. 4(A)), or by connecting a capacitance and an inductance between the center conductor and the terminal of the circulator or the ground. When the characteristic impedance is adjusted by the width of the arm of the center conductor, said width is controlled at the manufacturing stage through measuring the characteristic impedance."

The applicant argues that the impedance matching circuit of Ito et al. is not equivalent to the AAPA figures 13 & 14 impedance matching circuits because they operate by entirely different principles.

This argument is not persuasive because in the passage cited above Ito et al. teaches that the impedance may be changed by changing the width of the arm, which is utilizing the distributive properties of the circulator. The AAPA figures 13 & 14 also utilize the distributive properties of the lines in order to convert the impedance by controlling the length instead of using lumped elements such as capacitors and inductors (see the present application page 2, lines 5-15). Therefore, the two impedance conversion techniques are considered equivalent as recognized by Ito et al. and the applicant's admitted prior art.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin P. Bettendorf whose telephone number is (703) 308-2780. The examiner can normally be reached on 6:00-3:30 (M-F, 1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Justin P. Bettendorf
Primary Examiner
Art Unit 2817

jpb
March 31, 2003